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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,194	06/30/2005	Bertus Noordam	GRT/4662-45	8070

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EXAMINER	
LAU, JONATHAN S	
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1623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,194	NOORDAM ET AL.	
	Examiner	Art Unit	
	Jonathan S. Lau	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 Jul 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-15 and 20-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-15 and 20-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to Applicant's Amendment and Response, filed 10 Jul 2009, in which claims 6, 20 and 30 are amended to change the scope and breadth of the claim.

This application is the national stage entry of PCT/EP04/00658, filed 23 Jan 2004; and claims benefit of foreign priority document EPO 03075255.4, filed 27 Jan 2003. The foreign priority document is in English.

Claims 6-15 and 20-30 are pending in the current application.

Rejections Withdrawn

Applicant's Amendment, filed 10 Jul 2009, with respect to claims 6, 8-11 and 13 and 20-29 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanekawa et al. (US Patent 4,303,680, issued 1 Dec 1981, of record) in view of Keller et al. (US Patent 4,623,723, issued 18 Nov 1986, of record), with evidence provided by Kanegae et al. (US Patent 4,810,509, issued 7 Mar 1989, of record) and Chae et al. (Bioresource Technology, 2001, 76, p253-258, of record) has been fully considered and is persuasive, as amended claim 6 requires wherein the other soluble cell material comprises peptides and small proteins.

This rejection has been **withdrawn**.

Applicant's Amendment, filed 10 Jul 2009, with respect to claims 12 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanekawa et al. (US Patent 4,303,680, issued 1 Dec 1981, of record) in view of Keller et al. (US Patent 4,623,723, issued 18 Nov 1986, of record) as applied to claims 6, 8-11, 13 and 20-29 in the modified rejection reiterated below, and further in view of Fernandez et al. (Acta Biotechnol., 1992, 12(1), p49-56, of record) has been fully considered and is persuasive, as amended claims 12 and 30 require wherein the other soluble cell material comprises peptides and small proteins.

This rejection has been **withdrawn**.

Applicant's Amendment, filed 10 Jul 2009, with respect to claims 6, 7 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanekawa et al. (US Patent 4,303,680, issued 1 Dec 1981, of record) in view of Keller et al. (US Patent 4,623,723, issued 18 Nov 1986, of record) as applied to claims 6, 8-11, 13 and 20-29 above, and further in view of Potman et al. (US Patent 5,288,509, issued 22 Feb 1994, of record) has been fully considered and is persuasive, as amended claim 6 requires wherein the other soluble cell material comprises peptides and small proteins.

This rejection has been **withdrawn**.

Applicant's Amendment, filed 10 Jul 2009, with respect to claims 6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanekawa et al. (US Patent 4,303,680, issued 1 Dec 1981, of record) in view of Keller et al. (US Patent

4,623,723, issued 18 Nov 1986, of record) as applied to claims 6, 8-11, 13 and 20-29 above, and further in view of Tsuda et al. (US Patent 4,374,981, issued 22 Feb 1983, of record) has been fully considered and is persuasive, as amended claim 6 requires wherein the other soluble cell material comprises peptides and small proteins.

This rejection has been **withdrawn**.

The following are new grounds of rejection necessitated by Applicant's Amendment, filed 10 Jul 2009, in which claims 6, 20 and 30 are amended to change the scope and breadth of the claim. Claims 7-15 and 19-29 depend from claim 6 and incorporate all limitations therein.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Amended Claims 6, 8-11 and 13 and 20-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanekawa et al. (US Patent 4,303,680, issued 1 Dec 1981, of record) in view of Keller et al. (US Patent 4,623,723, issued 18 Nov 1986, of record) and in view of Amersham Biosciences (Gel Filtration: Principles and Methods, 2002, Amersham Biosciences, p1-34, cited in PTO-892) and in view of Chae et al. (Bioresource Technology, 2001, 76, p253-258, of record), with evidence provided by Kanegae et al. (US Patent 4,810,509, issued 7 Mar 1989, of record) and.

Tanekawa et al. discloses a process for producing a flavoring composition containing 5'-ribonucleotides (column 2, lines 9-10) comprising (i) treating yeast cells to release cell contents comprising RNA (column 2, lines 13-16), (ii) extracting the RNA present in the released cell contents (column 2, lines 18-20), and (iii) converting the separated RNA into 5'-ribonucleotides (column 2, lines 21-25). Tanekawa et al. discloses treating the yeast cells to release cell contents comprising RNA by autolysis or hydrolysis using enzymes is a conventional method (column 1, lines 25-30), and Kanegae et al. explains that autolysis involves the action of proteases (Kanegae et al., column 3, line 39). Tanekawa et al. discloses removal of insoluble solid material originating from the cells by methods such as centrifugation and filtration after extraction of RNA from the cell and prior to converting the separated RNA into 5'-ribonucleotides (column 4, lines 13-18). Tanekawa et al. discloses using a 5'-phosphodiesterase to

hydrolyze the separated RNA into 5'-nucleotides (column 4, lines 19-20) as well as deaminase (column 4, line 25). Tanekawa et al. discloses the preferred yeast cells are *Saccharomyces cerevisiae* (column 3, lines 4-5). Tanekawa et al. discloses an example in which the composition produced comprises more 5'-GMP (0.78%) than the sum of 5'-IMP and 5'-AMP, enzymatically converted to 5'-IMP (0.7 %) (column 7, lines 38-40)..

Tanekawa et al. does not specifically disclose separating the RNA present in the released cell contents from other soluble cell material smaller than 50 kDa wherein the other soluble cell material comprises peptides and small proteins (instant claim 6 and 20, step (ii)) in the process of extracting the RNA present in the released cell contents (column 2, lines 13-16). Tanekawa et al. does not specifically disclose the removal of solid material originating from the cells prior to separating the RNA present in the released cell contents from other soluble cell material (instant claims 10 and 11). Tanekawa et al. does not disclose the process wherein the composition comprises at least 55% w/w of 5'-ribonucleotides (instant claim 20), at least 65% w/w of 5'-ribonucleotides (instant claim 21), or at least 75% w/w of 5'-ribonucleotides (instant claim 22). Tanekawa et al. does not disclose the process wherein the composition comprises glutamate (instant claim 23).

Keller et al. teaches aqueous cell extracts containing nucleic acids (Keller et al. column 1, lines 5-17), corresponding to the RNA extract disclosed by Tanekawa et al. Keller et al. teaches separating the RNA present in the aqueous cell extract, or released cell contents, by precipitating the RNA from the filtered permeate (column 2, lines 60-65), implicitly separating the RNA from other soluble cell material smaller than 50 kDa

by the process of precipitation. Example 8 in US Patent 4,206,243, referred to in Keller et al. column 2, lines 53-55 and excerpted here:

EXAMPLE 8

Candida lipolytica ATCC 20383, a hydrocarbon-utilizing yeast species, was cultivated on n-paraffins in the presence of an aqueous nutrient medium and an oxygen-containing gas. The yeast cell mass was separated from the nutrient solution and dried.

100 g of the dry yeast cell mass were suspended at room temperature under normal pressure in 300 g of methanol and 10 g of gaseous NH_3 were added to this mixture within 15 minutes, the temperature of the suspension being maintained at 15° C. by cooling. After the gas was introduced, agitation was continued for another 20 minutes at 22° C., followed by filtration through a suction frit. The filter cake was mixed once thoroughly on the frit with 300 ml of methanol, then vacuum filtered. The two filtrates were combined. The solution had a yellow color and contained the lipids of the originally used cell material. Methanol and NH_3 were removed under reduced pressure (14 mm Hg).

The residue after the second filtration, consisting of the destroyed and degreased cells of the microorganism, was dried in a vacuum drying cabinet (100 mm Hg) at 40° C. for 5 hours. The thus obtained product exhibited a light color than the yeast cell mass originally used, and was odorless.

100 g of degreased and dried yeast were suspended in a solution of 1 liter of distilled water and 1000 ml of methanol, in order to reduce the original nucleic acid content of 7.5 weight %, calculated on the starting material. The mixture was agitated and, at a pH of 6.8, to which it adjusted itself, was heated to 50° C. for 15 minutes. Then by centrifugation it was separated into a sediment containing the yeast protein, and a liquid phase containing nucleic acid. The sediment was subjected to vacuum freeze drying after having been washed once more at room temperature.

The nucleic acid content of the dry material had diminished from the original 7.5 weight % to 0.4 weight %.

teaches the removal of solid material originating from the cells prior to the filtration taught by Keller et al. Keller et al. further teaches the isolation of the RNA (Keller et al. column 2, lines 45-49) to give a composition that is 100% 5'-ribonucleotides, meeting limitations of instant claims 20-22. Keller et al. also teaches the enzymatic degradation of the RNA-containing permeate without isolation to give the 5'-ribonucleotides (Keller et al. column 2, lines 3-8). Keller et al. teaches 5'-

ribonucleotides used as foodstuff additives are obtained by treating the aqueous cell extracts containing nucleic acids with 5'-phosphodiesterase, and that the 5'-deoxynucleotides by-products produced by DNA reacting with 5'-phosphodiesterase are difficult to separate from the desired 5'-ribonucleotides (Keller et al. column 1, lines 18-27). Keller teaches "The exclusion limit of the membrane is selected to accord with the known or determined molecular weights of the nucleic acids to be separated" (column 1, lines 50-55) and that "Membrane separating processes are generally familiar and especially so in biotechnology" (column 1, lines 55-60).

Amersham Biosciences teaches the level of ordinary skill in the art to separate and purify biomolecules using chromatography techniques (page 5, paragraph 1). Amersham Biosciences teaches it is within the level of ordinary skill in the art to optimize separations based on molecular weight and to separate peptides and small proteins from DNA and DNA-fragments (page 18-19).

Chae et al. teaches a food-grade yeast extract comprising flavoring enhancers glutamic acid and ribonucleotides from RNA (page 254, left column, paragraph 2) prepared by a combination of protease, 5'-phosphodiesterase, and deaminase inherently contains 25.9% amino acids on a solid weight basis (Chae et al. page 257, left column, lines 26-29 and 33-35), and the amino acids composition is 7.80% glutamic acid (Chae et al. page 257, right column, table 3, entry "Glutamic acid"), giving a composition that comprises 2.02% w/w of glutamate.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Tanekawa et al. in view of Keller et al. and in view of Amersham

Biosciences and in view of Chae et al. It would have been obvious to one of ordinary skill in the art to improve the process for producing a flavoring composition containing 5'-ribonucleotides disclosed by Tanekawa et al. with the known method taught by Keller et al. of separating the RNA present in the released cell contents from other soluble cell material. All of Tanekawa et al., Keller et al. and Chae et al. disclose production of a food-grade yeast extract comprising 5'-ribonucleotides as a foodstuff additive, and Keller et al. teaches that it is desirable that the process be improved by separating the RNA present in the released cell contents from other soluble cell material prior to converting the separated RNA into 5'-ribonucleotides (Keller et al. column 1, lines 18-27). It would have been obvious to one of ordinary skill in the art to separate the RNA present in the released cell contents from other soluble cell material smaller than 50 kDa wherein the other soluble cell material comprises peptides and small proteins because Amersham Biosciences teaches the level of ordinary skill in the art to separate and purify biomolecules using chromatography techniques and teaches it is within the level of ordinary skill in the art to optimize separations based on molecular weight and to separate peptides and small proteins from DNA and DNA-fragments. One of ordinary skill in the art would have a reasonable expectation of success in combining Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences because Keller et al. teaches "Membrane separating processes are generally familiar and especially so in biotechnology" and Amersham Biosciences teaches the ordinary level of skill in the art with regard to separating and purifying biomolecules using chromatography techniques.

Response to Applicant's Remarks:

Applicant's Remarks, filed 10 Jul 2009, have been fully considered and found not to be persuasive.

Applicant notes that Keller et al. is drawn to the separation of DNA from RNA and does not teach separation of RNA from other soluble cell material smaller than 50 kDa comprising peptides and small proteins because at the conditions taught by Keller et al. all material would be precipitated, therefore peptides and small proteins would not be separated from the RNA. However, Tanekawa et al. discloses removal of insoluble solid material originating from the cells by methods such as centrifugation and filtration after extraction of RNA from the cell and prior to converting the separated RNA into 5'-ribonucleotides (column 4, lines 13-18) and Amersham Biosciences teaches it is within the level of ordinary skill in the art to optimize separations based on molecular weight and to separate peptides and small proteins from DNA and DNA-fragments (page 18-19). Therefore in view of Amersham Biosciences teaching the level of ordinary skill in the art, one of ordinary skill in the art would have a reasonable expectation of success in combining Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al.

Applicant notes that Keller et al. is drawn to the separation of DNA from RNA, not from remarks that the method of the instant invention is likely to retain both DNA and RNA. However, Tanekawa et al. teaches separation of RNA from released cell contents that one on ordinary skill in the art would reasonable expect to comprise peptides and small proteins smaller than 50 kDa. Further, no limitation regarding both DNA and RNA is found in the claims because the instant invention as claimed only requires the

composition produced to contain 5'-ribonucleotides. Therefore the teachings of Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al. teaches the instant invention as claimed even though the motivation to combine the teachings is for different reasons than the instant invention.

Applicant remarks that the one of ordinary skill in the art would not have a reasonable expectation of success in combining Tanekawa et al. in view of Keller et al. because Keller et al. is drawn to the separation of DNA from RNA. As noted above, Tanekawa et al. teaches separation of RNA from released cell contents that one on ordinary skill in the art would reasonable expect to comprise peptides and small proteins smaller than 50 kDa. Further, Amersham Biosciences teaches the level of ordinary skill in the art to separate and purify biomolecules using chromatography techniques. Therefore, in view of Amersham Biosciences teaching the level of ordinary skill in the art, one of ordinary skill in the art would have a reasonable expectation of success in combining Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al.

Amended Claims 12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanekawa et al. (US Patent 4,303,680, issued 1 Dec 1981, of record) in view of Keller et al. (US Patent 4,623,723, issued 18 Nov 1986, of record) and in view of Amersham Biosciences (Gel Filtration: Principles and Methods, 2002, Amersham Biosciences, p1-34, cited in PTO-892) and in view of Chae et al. (Bioresource Technology, 2001, 76, p253-258, of record) as applied to claims 6, 8-11, 13 and 20-29,

and further in view of Fernandez et al. (Acta Biotechnol., 1992, 12(1), p49-56, of record).

Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al. teaches as above. Keller et al. teaches separating the RNA present in the aqueous cell extract, or released cell contents, by precipitating the RNA from the filtered permeate (column 2, lines 60-65), implicitly separating the RNA from other soluble cell material smaller than 50 kDa by the process of precipitation.

Tanekawa et al. in view of Keller et al. does not specifically teach separating the RNA present in the released cell contents from other soluble cell material smaller than 50 kDa by ultrafiltration with a filter and the RNA is recovered in the filter's retentate (instant claim 12). Tanekawa et al. does not specifically teach separating the RNA present in the released cell contents from other soluble cell material smaller than 50 kDa by ultrafiltration by a filter having a molecular weight cut-off from 10 kD to 50 kD (instant claim 30).

Fernandez et al. teaches separation by precipitation and ultrafiltration are known in the prior art as equivalent processes for the same purpose of purification of intracellular components, and teaches ultrafiltration is advantageous because avoids high temperatures or physicochemical changes that may alter the desired properties (page 49, paragraph 1 of Introduction). Fernandez et al. teaches concentrating and purifying RNA from cell extracts containing nucleic acids (page 49, paragraph 3 of Introduction) by ultrafiltration with hollow fiber membranes PM-10 and PM-30, or a filter having a molecular weight cut off of 10 or 30 kDa (page 50, paragraph 1 of section

Ultrafiltration and paragraphs 1 and 2 of section Membrane Selection), implicitly separating the RNA present in the released cell contents from other soluble cell material smaller than 10 or 30 kDa for recovery in the retentate.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al. and further in view of Fernandez et al. All of Tanekawa et al., Keller et al. and Fernandez et al. are drawn to the separation of RNA from cell extracts containing nucleic acids. Fernandez et al. teaches separation by precipitation and ultrafiltration are known in the prior art as equivalent processes for the same purpose of purification of intracellular components. One of ordinary skill in the art would be motivated to substitute the separation by precipitation taught by Keller et al. for the separation by ultrafiltration taught by Fernandez et al. because Fernandez et al. teaches ultrafiltration is advantageous because avoids high temperatures or physicochemical changes that may alter the desired properties.

Response to Applicant's Remarks:

Applicant's Remarks, filed 10 Jul 2009, have been fully considered and found not to be persuasive.

Applicant's Remarks with regard to Tanekawa et al. in view of Keller et al. are addressed as above.

Amended Claims 6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanekawa et al. (US Patent 4,303,680, issued 1 Dec 1981, of record)

in view of Keller et al. (US Patent 4,623,723, issued 18 Nov 1986, of record) and in view of Amersham Biosciences (Gel Filtration: Principles and Methods, 2002, Amersham Biosciences, p1-34, cited in PTO-892) and in view of Chae et al. (Bioresource Technology, 2001, 76, p253-258, of record) as applied to claims 6, 8-11, 13 and 20-29 above, and further in view of Tsuda et al. (US Patent 4,374,981, issued 22 Feb 1983, of record).

Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al. render unpatentable a process for producing a flavoring composition containing 5'-ribonucleotides (column 2, lines 9-10) comprising (i) treating yeast cells to release cell contents comprising RNA (Tanekawa et al. column 2, lines 13-16), (ii) separating the RNA present in the released cell contents from other soluble cell material (Keller et al. column 2, lines 58-65), and (iii) converting the separated RNA into 5'-ribonucleotides (Tanekawa et al. column 2, lines 21-25).

Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al. does not disclose the process wherein the 5'-ribonucleotides are further purified by removal of compounds having a higher molecular weight (instant claim 14) by ultrafiltration (instant claim 15).

Tsuda et al. discloses the separation of inosine and/or guanosine by ultrafiltration of fermentation broth to remove high molecular weight substances (Tsuda et al. column 2, lines 9-15). Tsuda et al. teaches ultrafiltration is a useful method to remove both suspended solids and also soluble, high molecular weight contaminants (Tsuda et al. column 1, lines 19-30). Tsuda et al. teaches that ultrafiltration is a useful method for

separating inosine and guanosine, useful as starting substances for a flavor nucleotide, from a fermentation broth, or cellular extract, containing such substances (Tsuda et al. column 1, lines 35-39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to improve the invention of Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al. by using the known technique of Tsuda et al. to improve a similar method in the same way because of the teaching of Tsuda et al. that ultrafiltration is a useful method to remove both suspended solids and also soluble, high molecular weight contaminants (Tsuda et al. column 1, lines 19-30). Tanekawa et al. discloses a yeast extract containing flavoring nucleotides (Tanekawa et al. column 2, lines 9-10). Tsuda et al. teaches that ultrafiltration is a useful method for separating inosine and guanosine, useful as starting substances for a flavor nucleotide, from a fermentation broth, or cellular extract, containing such substances (Tsuda et al. column 1, lines 35-39). A nucleotide is a nucleoside that is phosphorylated and has a similarly low molecular weight compared to high molecular weight contaminants, and with regard to the molecular-weight based filtration methods of Tsuda et al. is a functional equivalent. Therefore to improve the invention of Tanekawa et al. in view of Keller et al. by using the known technique of Tsuda et al. to improve a similar method would have been obvious to one of ordinary skill in the art at the time of the invention.

Response to Applicant's Remarks:

Applicant's Remarks, filed 10 Jul 2009, have been fully considered and found not to be persuasive.

Applicant's Remarks with regard to Tanekawa et al. in view of Keller et al. are addressed as above.

Amended Claims 6, 7 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanekawa et al. (US Patent 4,303,680, issued 1 Dec 1981, of record) in view of Keller et al. (US Patent 4,623,723, issued 18 Nov 1986, of record) and in view of Amersham Biosciences (Gel Filtration: Principles and Methods, 2002, Amersham Biosciences, p1-34, cited in PTO-892) and in view of Chae et al. (Bioresource Technology, 2001, 76, p253-258, of record) as applied to claims 6, 8-11, 13 and 20-29 above, and further in view of Potman et al. (US Patent 5,288,509, issued 22 Feb 1994, of record).

Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al. render unpatentable a process for producing a flavoring composition containing 5'-ribonucleotides (column 2, lines 9-10) comprising (i) treating yeast cells to release cell contents comprising RNA (Tanekawa et al. column 2, lines 13-16), (ii) separating the RNA present in the released cell contents from other soluble cell material (Keller et al. column 2, lines 58-65), and (iii) converting the separated RNA into 5'-ribonucleotides (Tanekawa et al. column 2, lines 21-25).

Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al. does not disclose the process wherein the native enzymes of the cell are inactivated prior to treating the cells to release the cell contents (instant claim 7).

Potman et al. teaches the process for preparing a yeast extract useful as a food flavor (Potman et al., abstract), involving the deactivation of the native enzymes of the yeast (Potman et al. column 2, lines 32-36) prior to the enzymatic degradation of the cell with a protease such as papain (Potman et al. example 1 on column 5, lines 6-14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute functional equivalent methods of enzymatic degradation of the cell to practice the invention of Tanekawa et al. in view of Keller et al. and in view of Amersham Biosciences and in view of Chae et al. with the method involving the deactivation of the native enzymes of the yeast prior to the enzymatic degradation of the cell with an exogenous protease such as papain taught by Potman et al. in place of autolysis with the cell's endogenous protease with a reasonable expectation of success. Tanekawa et al. discloses treating the yeast cells to release cell contents comprising RNA by autolysis or hydrolysis using enzymes is a conventional method (Tanekawa et al. column 1, lines 25-30). Potman et al. teaches the equivalence of enzymatic degradation of the cell with an exogenous protease and autolysis with the cell's endogenous protease (Potman et al., column 2, lines 45-50).

Response to Applicant's Remarks:

Applicant's Remarks, filed 10 Jul 2009, have been fully considered and found not to be persuasive.

Applicant's Remarks with regard to Tanekawa et al. in view of Keller et al. are addressed as above.

Conclusion

No claim is found to be allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan S. Lau whose telephone number is 571-270-3531. The examiner can normally be reached on Monday - Thursday, 9 am - 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on 571-272-0627. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

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